

The Asian Species of *Microcreagris* Balzan (Pseudoscorpiones: Neobisiidae) Described by J.C. Chamberlin

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Abstract The four species of *Microcreagris* first described by J. C. Chamberlin (1930) from China and Japan are transferred to the genus *Bisetocreagris* Čurčić and the type material is redescribed: *B. brevidigitata* (Chamberlin) comb. nov., *B. lampra* (Chamberlin) comb. nov., *B. orientalis* (Chamberlin) comb. nov. and *B. silvestrii* (Chamberlin) comb. nov. The type localities for the three species described from China are emended or clarified. Notes are given on *Bisetocreagris japonica* (Ellingsen), which is also represented in the Chamberlin collection. The status of the genus *Chinacreagris* Čurčić, 1983 is discussed, and the genus is newly synonymized with *Bisetocreagris*; the type species, *Microcreagris chinensis* Beier, 1943, is newly synonymized with *B. silvestrii*, and two new combinations are proposed: *B. kwantungensis* (Beier, 1967) comb. nov., and *B. nankingensis* (Čurčić, 1983) comb. nov.

Introduction

In the second part of his “synoptic classification” of pseudoscorpions, Chamberlin (1930) described four new species of Neobisiidae from China and Japan, which he attributed to the genus *Microcreagris* Balzan. All of this material was collected by F. Silvestri in 1924–1925 during his visit to the Far East, and the specimens were sent to Chamberlin to aid in his revision. By modern standards, most of the species descriptions provided by Chamberlin (1929, 1930) are barely adequate, and many species are difficult to recognise without access to the original material. During a recent visit to the California Academy of Sciences, San Francisco (CAS), courtesy of Dr Charles Griswold and Mr Vincent Lee, I was able to examine the combined Chamberlin-Benedict-Malcolm pseudoscorpion collection which had been recently donated to that institution. Amongst that collection were the types of these four species, all mounted on microscope slides, which I examined in detail to ascertain their generic and specific identities.

Terminology largely follows Chamberlin (1931) and Harvey (1992); measurements are given to the nearest 0.005 mm.

Silvestri's Locality Data

There has been some confusion in the literature regarding the locality data supplied with some of the pseudoscorpion specimens examined by Chamberlin (1929a, 1929b, 1930), which were collected by Prof. Filippo Silvestri in the Far East. Some localities have been uncontroversial (e.g. Mt Kirishima, Japan), but others were doubted even by Chamberlin, who probably had no clear understanding of the provenance of the material. As Chamberlin (1929) does not acknowledge Silvestri as a donor of material

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to his studies, there is a possibility that the material was received from an intermediary, without supporting documentation.

Fortunately, an itinerary of Silvestri's collection sites was published posthumously (Silvestri 1959), from which it is possible to elucidate the correct names and locations of these localities. In addition, I have attempted to corroborate the provenance of the material by examination of papers published in the *Bollettino del Laboratorio di Zoologia Generale e Agraria, Portici*, the journal of Silvestri's institution, and the publisher of numerous papers dealing with Silvestri's collections from the Far East. Although these papers include several of Silvestri's own papers, very few of them actually specify the collection date, which I have used as a check to determine whether the emended localities are correct.

The type locality of *Microcreagris lampra* was simply stated as "Kusang (China?)" by Chamberlin (1930), based upon two females collected on 27-IX-1924. Arcangeli (1927), Takahashi (1927), Silvestri (1931), Wheeler (1928) and others refer to this locality as a mountain situated near "Foochow" in Fukien Province. There are two mountains with a similar sounding name in the vicinity of Foochow, which is sometimes called Fu-chow, but more recently referred to as Fuzhou (26°05'N, 119°18'E); Kui Shan (25°32'N, 119°14'E) and Ku Shan (now Gu Shan, 26°04'N, 119°25'E). The latter locality is closer to Fuzhou, and is here interpreted as the type locality of *M. lampra*, which is in accord with the map published by Silvestri (1959, fig. XXII).

The type locality of *Microcreagris orientalis* is given by Chamberlin (1930) as "Lookay (China?)", collected on 22-II-1925. Several papers dealing with other material collected by Silvestri refer to "Lao-Kay, Tonkin", but none are furnished with a date [e.g. Borelli (1927), Silvestri (1928a, b, 1931) and Wheeler (1927)]. This locality is now situated in Vietnam and lies just over the Chinese border in the former province of Tonkin (Silvestri 1959, fig. XXII). Other northern Vietnamese localities visited by Silvestri around this date include Phu Tho on 13-14-II-1925, Tocco, near Chapa on 19-II-1925 and Coxan on 21-II-1925. He was also in the neighbouring Chinese province of Yunnan on 24-II-1925 to 2-III-1925, but had travelled south to Hanoi by 4-III-1925. Therefore, it seems clear that Chamberlin's spelling is a lapsus for Lao-Kay, and the town is now spelt as "Lao Cai" (22°29'N, 103°57'E).

The type locality of *M. silvestrii* is given by Chamberlin (1930) as "Ychyhan (China?)", with the material collected on 24-X-1925. Turk (1946) corrected the spelling to I Chi, noting that "there is little doubt that this refers to a village called I Chi, Han being Chinese for a village". However, based upon the date of collection there is little doubt that it represents 'Yolushan', a mountain visited by Silvestri on 24-X-1925, which is situated south of Changsha (28°12'N, 112°58'E) in Hunan Province. This locality is also spelt Yoloshan, but is today rendered as Yuelu Shan (28°11'N, 112°56'E). It is conceivable that a hand-written label 'Yolushan' could have been misconstrued as 'Ychyhan'.

Genus *Bisetocreagris* Čurčić, 1983

Bisetocreagris Čurčić, 1983, p. 25. Type species: *Microcreagris annamensis* Beier, 1951, by original designation.

Chinacreagris Čurčić, 1983, p. 30-31. Type species: *Microcreagris chinensis* Beier, 1943, by original designation. **Syn. nov.**

Pedalocreagris Curcic, 1985, p. 349–350. Type species: *Pedalocreagris tethys* Čurčić, 1985 (junior synonym of *Microcreagris ussuriensis* Redikorzev, 1934), by original designation. Synonymized by Judson, 1993: 1207.

Remarks. Many of the species previously placed in *Microcreagris* have been shown to be not congeneric with the type species, *M. gigas* Balzan, and several new genera have been erected to accommodate them, including several Asian genera (Čurčić 1983, 1985). The validity of some of these genera was questioned by Dashdamirov & Schawaller (1992), and Judson (1993) formally synonymised *Pedalocreagris* with *Bisetocreagris*.

While it is clear that all of the species described below lack the distinguishing features of *Microcreagris* (Mahnert 1979, Čurčić 1983), the problem as to which genus they should be placed becomes apparent. Males are represented in only two of the five species treated below, and both of these share the main diagnostic feature of *Bisetocreagris* – the presence of two small setae on either side of the anteromedian groove of sternite III (Fig. 14).

However, two of these species (*M. lampra*, *M. brevidigitata*) share the main feature claimed by Čurčić (1983) to diagnose *Chinacreagris*: the presence of ‘biseriate’ setation on sternites VI–VIII. This pattern actually refers to a slight anterior movement of 2–4 discal setae such that they are situated 1–3 areolar diameters in advance of the remaining setae which does not constitute a true ‘biseriate’ pattern. The holotype of *M. lampra* possesses a ‘biseriate’ sternite VIII, while the holotype of *M. brevidigitata* possesses ‘biseriate’ sternites IX–X. The positions of the discal setae are not as far advanced as that found in *Roncocreagris murphyorum* Judson (Judson 1992, fig. 9) and no evidence can be found of a sternal gland associated with these setae. If indeed a sternal gland is present in these species, then the retention of a separate genus may be warranted.

Chinacreagris was also segregated from *Bisetocreagris* by the presence of the apex of the pedipalpal coxa bearing 5 or, occasionally, 6 setae. The holotype of *M. lampra* bears 4 or 5 setae on the apex of the pedipalpal coxae, while the holotype of *M. brevidigitata* bears 4 such setae. The variable nature of the number of setae on the pedipalpal coxa seems to negate its value at the generic level, which only leaves the ‘biseriate’ sternites to diagnose *Chinacreagris*. The distinction between those species with slightly advanced discal setae and those without is so small that I consider it to be an insignificant character on which to diagnose a genus, and I here synonymize *Chinacreagris* with *Bisetocreagris*. The status of *Orientocreagris* must be reviewed by a restudy of the type species *O. syrinx* Čurčić, 1985, but as surmised by Dashdamirov & Schawaller (1992), it will probably fall as a synonym of *Bisetocreagris*.

In addition, the type species of *Chinacreagris*, *Microcreagris chinensis* Beier, 1943, is regarded as a synonym of *M. silvestrii*, despite the apparent difference in the setation of sternites VI–VIII: uniseriate in *B. silvestrii*, and ‘biseriate’ in *M. chinensis* (see below). As a result of the generic synonymy, the following new combinations are proposed:

Bisetocreagris kwantungensis (Beier, 1967) comb. nov.

Bisetocreagris nankingensis (Čurčić, 1983) comb. nov.

***Bisetocreagris brevidigitata* (Chamberlin, 1930) comb. nov.**

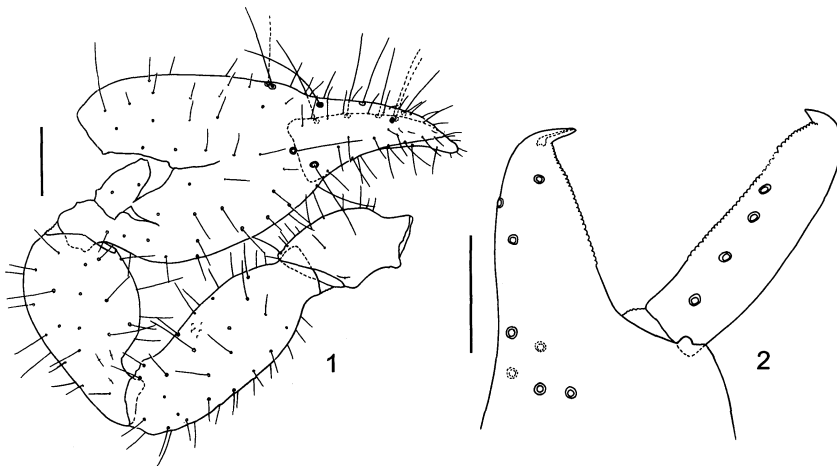
(Figs. 1-2)

Microcreagris brevidigitata Chamberlin, 1930, p. 26-27; Harvey, 1991, p. 341 (full synonymy).

Material examined. Holotype ♀, Mt Kirishima (= Kirishima-yama), Kyushu, Japan [31°54'N, 130°53'E], 20-IX-1925 [although label reads 1924], F. Silvestri (CAS Type No. 17460, JC-390.01001).

Diagnosis. *Bisetocreagris brevidigitata* differs from all other Asian microcreagrine species by the extremely short chelal fingers, which are much shorter than the chelal hand.

Description (Holotype ♀). Colour mostly red-brown, pedipalps and carapace slightly darker. Pedipalps (Fig. 1): apex of coxa rounded and with 4 setae; trochanter 1.83, femur 2.61, patella 1.95, chela (with pedicel) ca. 2.31, chela (without pedicel) ca. 2.21, hand (without pedicel) ca. 1.32 times longer than broad, movable finger 0.77 times longer than hand (without pedicel). Anterior face of femur and chelal hand slightly granulate; patella smooth. Fixed chelal finger with 8 trichobothria, movable chelal finger with 4 trichobothria (Fig. 2); *eb* and *esb* situated on lateral margin of hand, grouped very closely with *ib*, *isb* and *ist*, *est* closer to *et* than to *isb*; *ist* situated near *ib*; *b*, *sb* and *st* equidistant, and *st* and *t* closer to each other. Chelal teeth small and contiguous (Fig. 2), fixed finger with 31 and movable finger with ca. 42 teeth. Chelicera: hand with 7 setae, movable finger with 1 sub-medial seta; fixed finger with 7 teeth on inner surface; movable finger with 13 teeth on inner surface; serrula exterior with 32 lamellae; flagellum of 7 blades, all blades with anteriorly-directed spinules, the basal-most blade less than half the length of the others; galea small and subdistally bifurcate, each tine with additional distal bifurcation. Carapace with a total of 30 setae, including 6 setae on anterior margin and 10 setae on posterior margin, 1.08 times longer than broad; epistome small, triangular; 4 eyes, posterior pair indistinct. Pleural membrane



Figs. 1-2. *Bisetocreagris brevidigitata* (Chamberlin, 1930), holotype ♀ — 1, Left pedipalp, dorsal; 2, right chela, lateral. (Scale lines: 0.25 mm.)

strongly granulate. Anterior tergites with uniseriate setation, but posterior tergites with tactile setae situated slightly anterior to other setae; most sternites with uniseriate setation, but the tactile setae of sternites VI–X situated 2–3 areolar diameters in advance of other setae; tergal chaetotaxy: 12: 13: 12: 13: 12: 15: 14: 13: 15: 16: 6: 2, including at least 2 tactile setae on tergites VI–XI; sternal chaetotaxy: 6: (5)8(4): (4)8(4): 16: 16: 18: 19: 17: 16: 6: 2, including at least 2 tactile setae on tergites IX–X. Genital opercula: sternite III with 4 mesally-directed setae on either side. Female genitalia with large, single median cribriform plate, and subdivided lateral cribriform plates. Legs: very stout; leg I with femur 1.31 times longer than patella; junction between femur and patella I oblique; femur + patella IV 2.53 times longer than deep; junction between femur and patella IV perpendicular; tibia IV 4.67 times longer than deep; tactile setae distributed as follows: tibia IV with 1 medial seta, metatarsus IV with 1 sub-proximal seta, and tarsus IV with 1 medial seta; subterminal tarsal seta bifurcate, dorsal tine also terminally bifurcate; arolium not divided distally, slightly shorter than claws.

Dimensions (mm): Body length ca. 3.2. Pedipalps: trochanter 0.495/0.270, femur 0.820/0.315, patella 0.735/0.380, chela (with pedicel) 1.365/ca. 0.59, chela (without pedicel) 1.305, hand length (without pedicel) 0.775, movable finger length 0.595. Chelicera 0.565/0.315, movable finger length 0.420. Carapace 0.870/0.805; diameter of anterior eye 0.060; diameter of posterior eye 0.030. Leg I: femur 0.390/0.175, patella 0.295/0.145, tibia 0.415/0.120, metatarsus 0.170/0.095, tarsus 0.280/0.090. Leg IV: femur + patella 0.760/0.300, tibia 0.690/0.145, metatarsus 0.225/0.115, tarsus 0.365/0.100.

Remarks. Given the intensity with which the Japanese fauna has been studied, it is somewhat remarkable that *B. brevidigitata* does not appear to have been collected again since Chamberlin's description. The holotype from Kirishima-yama is in good condition, except that both chelal hands are cracked from pressure exerted by the coverslip, which has resulted in an only approximate measurement for the hand width.

According to Silvestri (1959), he visited Kirishima-yama on 20-IX-1925, not in 1924, as stated on the slide label.

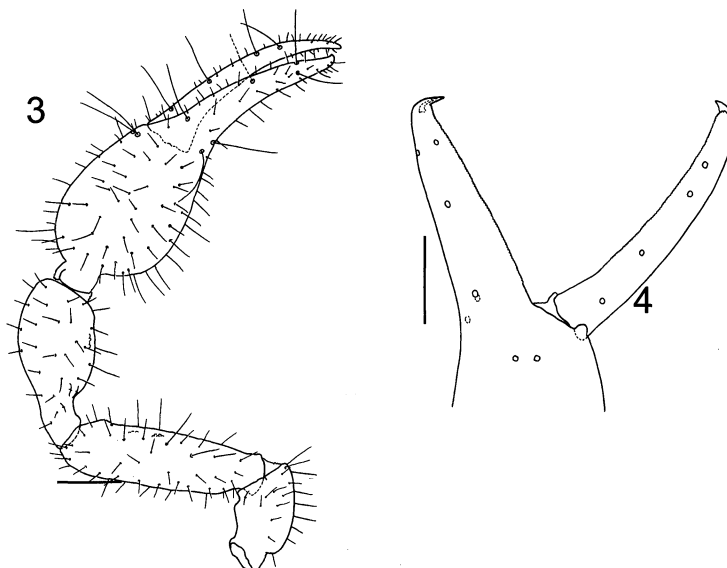
***Bisetocreagris lampra* (Chamberlin, 1930) comb. nov.**
(Figs. 3–4)

Microcreagris lampra Chamberlin, 1930, p. 34; Harvey, 1991, p. 343 (full synonymy); Schawaller, 1995, p. 1051.

Material examined. Holotype ♀, paratype ♀, Gu Shan (originally “Kusang”), near Fuzhou, Fukien, China [26°04'N, 119°25'E], 27-IX-1924, F. Silvestri (CAS Type No. 17461, JC-398.01001–2).

Diagnosis. The large size of *B. lampra* (e.g. pedipalpal femur length of 1.600 mm) easily distinguishes this species from all congeners.

Description (Holotype ♀). Colour mostly red-brown, pedipalps and carapace slightly darker. Pedipalps (Fig. 3): apex of coxa rounded and with 4 or 5 setae; trochanter 2.92, femur 3.56, patella 2.30, chela (with pedicel) 4.73, chela (without pedicel) 4.53, hand (without pedicel) 2.07 times longer than broad, hand (without pedicel) 1.34 times longer than movable finger. Anterior face of femur, patella and chelal hand slightly granulate. Fixed chelal finger with 8 trichobothria, movable chelal finger with



Figs. 3-4. *Bisetocreagris lamprea* (Chamberlin, 1930), holotype ♀ — 3, Left pedipalp, dorsal; 4, right chela, lateral. (Scale lines: 0.50 mm.)

4 trichobothria (Fig. 4); *eb* and *esb* situated on lateral margin of hand, *est* much closer to *et* than to *isb*; *ist* situated near *ib*; *b*, *sb*, *st* and *t* approximately equidistant, with *st* and *t* slightly closer to each other. Chelal teeth small and contiguous (Fig. 4), fixed finger with 85 and movable finger with 82 teeth. Chelicera: hand with 7 setae, movable finger with 1 sub-medial seta; fixed finger with 15 teeth on inner surface; movable finger with 12 teeth on inner surface; serrula exterior with 46 lamellae; flagellum of 8 blades, all blades with anteriorly-directed spinules, the basal-most blade less than half the length of the others; galea medium-sized, with major bifurcation about half-way, each tine distally bifurcate. Carapace with a total of 31 setae, including 6 setae on anterior margin and 8 setae on posterior margin, somewhat square-shaped, but width not measurable due to orientation of the carapace; epistome small, triangular; 4 eyes. Pleural membrane strongly granulate. Tergites and sternites with uniseriate setation, although 2 discal setae of sternite VIII situated slightly anterior to other setae; tergal chaetotaxy: 9: 16: 13: 17: 15: 16: 16: 16: 14: 13: 6: 2, posterior sternites with several pairs of slightly longer setae, but it is difficult to discern whether they represent 'tactile' setae; sternal chaetotaxy: 10: (4)11(6): (5)9(6): 17: 17: 17: 18: 17: 16 (including 6 tactile setae): 9: 2. Genital opercula: sternite III with 5 mesally directed setae on either side. Female genitalia with large, single median cribriform plate, and subdivided lateral cribriform plates. Legs: moderately slender; leg I with femur 1.47 times longer than patella; junction between femur and patella I oblique; femur + patella IV 3.34 times longer than deep; junction between femur and patella IV perpendicular; tibia IV 5.85 times longer than deep; tactile setae distributed as follows: tibia IV with 1 sub-medial seta, metatarsus IV with 1 sub-proximal seta, and tarsus IV with 1 medial seta; subterminal tarsal seta bifurcate, dorsal tine also terminally bifurcate; arolium not divided distally, slightly

shorter than claws.

Dimensions (mm): Body length ca. 5.20. Pedipalps: trochanter 0.895/0.305, femur 1.600/0.450, patella 1.345/0.585, chela (with pedicel) 2.755/0.585, chela (without pedicel) 2.610, hand length (without pedicel) 1.210, movable finger length 1.615. Chelicera 0.975/0.515, movable finger length 0.665. Carapace 1.385/not measurable; diameter of anterior eye 0.120; diameter of posterior eye 0.130. Leg I: femur 0.865/0.255, patella 0.585/0.225, tibia 0.795/0.155, metatarsus 0.385/0.130, tarsus 0.495/0.110. Leg IV: femur + patella 1.555/0.465, tibia 1.340/0.230, metatarsus 0.565/0.185, tarsus 0.680/0.185.

Remarks. As noted above, the type locality is here emended to Gu Shan (originally given as "Kusang"), near Fuzhou, Fukien Province, China.

Bisetocreagris orientalis (Chamberlin, 1930) comb. nov.

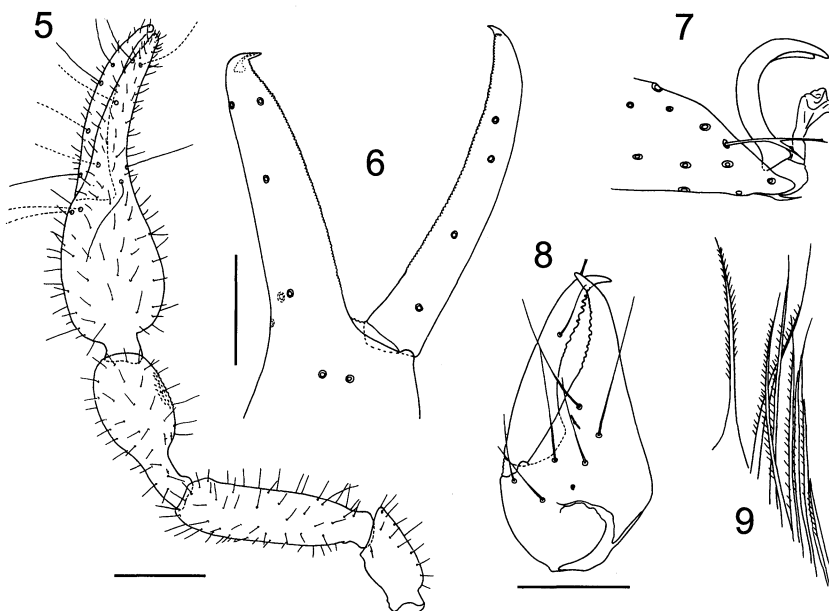
(Figs 5–9)

Microcreagris orientalis Chamberlin, 1930, p. 34; Harvey, 1991, p. 344 (full synonymy); Schawaller, 1995, p. 1051; Song, 1996, p. 78, figs 10–13.

Material examined. Holotype ♀, Lao-kay [now Lao Cai], Tonkin, Vietnam [22° 29'N, 103°57'E], 22–II–1925, F. Silvestri (CAS Type No. 17462, JC-397.01001).

Diagnosis. Although this species is most similar in size and proportions to *Bisetocreagris kaznakovi* (Redikorzev) (e.g. pedipalpal femur length 1.30 mm in *B. kaznakovi* and 1.350 mm in *B. orientalis*), they differ in several respects: the pedipalpal patella is strongly pedicellate in *B. orientalis*, but less so in *B. kaznakovi* (Dashdamirov & Schawaller 1992, figs 48–49); the chelal hand is granulate on the external and internal margins of *B. kaznakovi* (Dashdamirov & Schawaller 1992), while that of *B. orientalis* is smooth.

Description (Holotype ♀). Colour mostly red-brown, pedipalps and carapace slightly darker. Pedipalps (Fig. 5): apex of coxa rounded and with 5 setae; trochanter 2.20, femur 3.83, patella 2.40, chela (with pedicel) 3.36, chela (without pedicel) 3.14, hand (without pedicel) 1.45 times longer than broad, movable finger 1.30 times longer than hand (without pedicel). Anterior faces of femur and patella granulate; chela smooth. Fixed chelal finger with 8 trichobothria, movable chelal finger with 4 trichobothria (Fig. 6); *eb* and *esb* situated on lateral margin of hand, *est* slightly closer to *et* than to *isb*; *ist* situated near *ib*; *b* and *sb* approximately equidistant, *st* and *t* slightly closer to each other. Chelal teeth small and contiguous (Fig. 6), fixed finger with 85 and movable finger with 85 teeth. Chelicera (Figs 8, 9): hand with 7 setae, movable finger with 1 sub-medial seta; fixed finger with 18 small teeth on inner surface; movable finger with 16 small teeth on inner surface; serrula exterior with 40 lamellae; flagellum (Fig. 9) of 8 blades, all blades with anteriorly-directed spinules and the distal-most blade with spinules on anterior and posterior surfaces, the basal-most blade less than half the length of the others, the distal-most blade with expanded base; galea small and distally bifurcate. Carapace with a total of 31 setae, including 6 setae on anterior margin and 8 setae on posterior margin, somewhat square-shaped, but width not measurable due to orientation of the carapace; epistome small, triangular; 4 eyes. Pleural membrane strongly granulate. Tergites and sternites with uniseriate setation, sternites VI–VIII without discal setae situated slightly anterior to other setae; tergal chaetotaxy: 11: 11: 12:



Figs. 5–9. *Bisetocreagris orientalis* (Chamberlin, 1930), holotype ♀ — 5, Left pedipalp, dorsal; 6, right chela, lateral; 7, tip of tarsus IV; 8, left chelicera, dorsal; 9, flagellum. (Scale lines: Fig. 5, 0.50 mm; Figs. 6, 8, 0.25 mm, Fig. 9, 0.05 mm.)

12: 12: 12: 12: 12: 12: 10: 4: 2; sternal chaetotaxy: 9: (5)20(6): (5)13(5): 14: 15: 15: 14: 14: 14 (including 4 tactile setae): 8 (including 4 tactile setae): 2. Genital opercula: sternite III with 4 mesally-directed setae on one side and 5 on the other. Female genitalia not visible. Legs: moderately slender; leg I with femur 1.33 times longer than patella; junction between femur and patella I oblique; femur + patella IV 3.17 times longer than deep; junction between femur and patella IV perpendicular; tibia IV 3.86 times longer than deep; tactile setae distributed as follows: tibia IV with 1 medial seta, metatarsus IV with 1 sub-proximal seta, and tarsus IV with 1 medial seta; subterminal tarsal seta deeply bifurcate, with each tine terminally bifurcate (Fig. 9); arolium not divided distally, slightly shorter than claws (Fig. 9).

Dimensions (mm): Body length ca. 4.10. Pedipalps: trochanter 0.770/0.350, femur 1.350/0.355, patella 1.150/0.480, chela (with pedicel) 2.255/0.670, chela (without pedicel) 2.110, hand length (without pedicel) 0.975, movable finger length 1.270. Chelicera 0.815/0.405, movable finger length 0.565. Carapace 1.135/not measurable; diameter of anterior eye 0.050; diameter of posterior eye 0.060. Leg I: femur 0.665/0.200, patella 0.500/0.175, tibia 0.690/0.125, metatarsus 0.290/0.100, tarsus 0.435/0.095. Leg IV: femur + patella 1.215/0.385, tibia 1.120/0.290, metatarsus 0.365/0.140, tarsus 0.590/0.130.

Remarks. The holotype is generally in good condition, although the abdomen is somewhat shrivelled, apparently due to over-clearing in a caustic solution. As noted above, the type locality is here emended to Lao Cai, Tonkin, Vietnam.

Song (1996) partially redescribed five newly collected specimens under the name *M.*

orientalis, but his illustration and measurements appear to indicate that the specimens are not conspecific with the holotype described here.

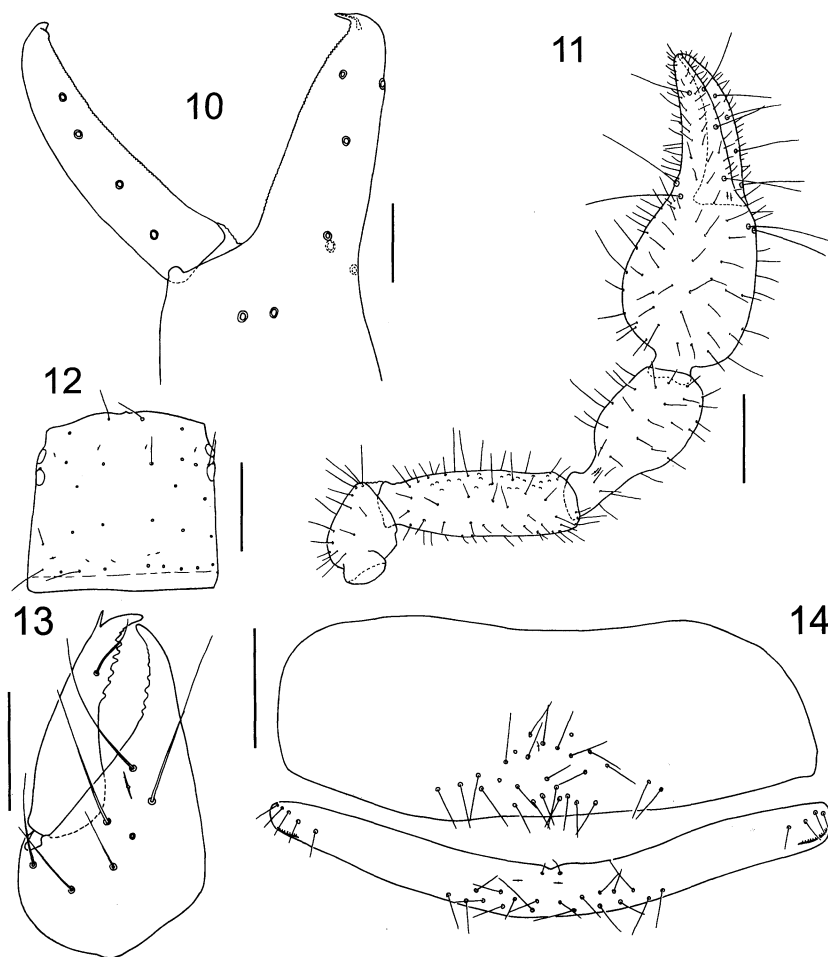
***Bisetocreagris silvestrii* (Chamberlin, 1930) comb. nov.**

(Figs 10–14)

Microcreagris silvestrii Chamberlin, 1930, p. 27; Harvey, 1991, p. 345 (full synonymy); Schawaller, 1995, p. 1051.

Microcreagris chinensis Beier, 1943, p. 74–75, fig. 1. **Syn. nov.**

Chinacreagris chinensis (Beier): Harvey, 1991, p. 333 (full synonymy); Schawaller, 1995, p. 1053–1054,



Figs. 10–14. *Bisetocreagris silvestrii* (Chamberlin, 1930), holotype ♂ — 10, Left chela, lateral; 11, right pedipalp, dorsal; 12, carapace, dorsal; 13, left chelicera, dorsal; 14, genital sternites. (Scale lines: Figs. 10, 13, 14, 0.25 mm; Figs. 11, 12, 0.50 mm.)

figs 12–13.

Material examined. Holotype ♂, 4 paratype ♂ of *M. silvestrii*, Yuelu Shan [originally stated to be 'Ychyhan', a misspelling of 'Yolushan'], near Changsha, Hunan Province, China [28°11'N, 112°56'E], 24-X-1925, F. Silvestri (CAS Type No. 17463, JC- 399.01001–5).

Diagnosis. *Bisetocreagris silvestrii* differs from all other *Bisetocreagris* species by a combination of size (e.g. male pedipalpal femur 1.145/0.0355 mm) and morphological (e.g. pedipalpal patella strongly pedicellate) features.

Description (Holotype ♂). Colour mostly red-brown, pedipalps and carapace slightly darker. Pedipalps (Fig. 11): apex of coxa rounded and with 5 setae; trochanter 1.67, femur 3.23, patella 2.16, chela (with pedicel) 2.58, chela (without pedicel) 2.42, hand (without pedicel) 1.26 times longer than broad, movable finger 0.91 times longer than hand (without pedicel). Anterior face of femur very slightly granulate; patella and chela smooth. Fixed chelal finger with 8 trichobothria, movable chelal finger with 4 trichobothria (Fig. 10); *eb* and *esb* situated on lateral margin of hand, *est* much closer to *et* than to *isb*; *ist* situated near *ib*; *b*, *sb*, *st* and *t* approximately equidistant, with *st* and *t* slightly closer to each other. Chelal teeth small and contiguous (Fig. 10), fixed finger with 65 and movable finger with 78 teeth. Chelicera (Fig. 13): hand with 7 setae, movable finger with 1 sub-medial seta; fixed finger with 7 teeth on inner surface; movable finger with 8 teeth on inner surface; serrula exterior with 38 lamellae; flagellum of 8 blades, all blades with anteriorly-directed spinules, the basal-most blade less than half the length of the others; galea small and acuminate. Carapace (Fig. 12) with a total of 33 setae, including 6 setae on anterior margin and 9 setae on posterior margin, 0.96 times longer than broad; epistome small, triangular; 4 eyes. Pleural membrane strongly granulate. Tergites and sternites with uniseriate setation, sternites VI–VIII without discal setae situated slightly anterior to other setae; tergal chaetotaxy: 12: 12: 14: 14: 15: 14: 14: 14: 15 (including 4 tactile setae): ? : ? : 2; sternal chaetotaxy: 31: (5)22 [6](5): (6) 9(7): 18: 14: [teratological]: 16: 15: 14 (including 4 tactile setae): ? : 2. Genital opercula (Fig. 14): sternite III with 19 setae scattered on posterior half of sternite, and 2 anteriorly directed setae near anterior margin. Male genitalia: lateral apodeme and lateral rod fused along entire length; ejaculatory canal atrium large; median genital sac lost from slide preparation; genital atrium with 3 pairs of internal setae. Legs: moderately slender; leg I with femur 1.40 times longer than patella; junction between femur and patella I oblique; femur + patella IV 2.87 times longer than deep; junction between femur and patella IV perpendicular; tibia IV 5.00 times longer than deep; tactile setae distributed as follows: tibia IV with 1 medial seta, metatarsus IV with 1 sub-proximal seta, and tarsus IV with 1 medial seta; subterminal tarsal seta bifurcate, dorsal tine also terminally bifurcate; arolium not divided distally, slightly shorter than claws.

Dimensions (mm): Body length 4.00. Pedipalps: trochanter 0.625/0.375, femur 1.145/0.355, patella 1.000/0.465, chela (with pedicel) 1.860/0.720, chela (without pedicel) 1.740, hand length (without pedicel) 0.910, movable finger length 0.830. Chelicera 0.690/0.385, movable finger length 0.490. Carapace 0.985/1.030; diameter of anterior eye 0.055; diameter of posterior eye 0.075. Leg I: femur 0.630/0.200, patella 0.450/0.180, tibia 0.580/0.130, metatarsus 0.320/0.105, tarsus 0.410/0.090. Leg IV: femur + patella 1.210/0.420, tibia 1.000/0.200, metatarsus 0.430/0.155, tarsus 0.545/0.125.

Remarks. *Bisetocreagris silvestrii* appears to be distinct from all Asian microcreagrine species, with the exception of *B. chinensis* (Beier) which has been described and illustrated by Beier (1943), Čurčić (1983), Schawaller (1995) and Song (1996). These two species share a number of morphological features including the size and shape of the pedipalps. As noted above, *B. chinensis* was placed by Čurčić (1983) in the genus *Chinacreagris* based upon several morphological features, of which the possession of 'biseriate' sternites VI–VIII was the most heavily emphasized (Čurčić 1983, 1985). In fact, the 'biseriate' nature of the sternites, where the discal setae of sternites VI–VIII are situated slightly anterior to the remaining setae, seems to be of little consequence at the generic level, and elsewhere in this paper I have synonymized *Chinacreagris* with *Bisetocreagris*. The holotype of *B. silvestrii* possesses uniseriate sternites where the discal setae of sternites VI–VIII are not situated slightly anterior to the remaining setae, which is in contrast with the description of a specimen of *C. chinensis* from the type locality (Nan-ching, Kiangsu, China) presented by Čurčić (1983). In the absence of any other features which could be used to separate *B. silvestrii* from *B. chinensis*, I hereby render the two as synonyms.

As noted by Chamberlin (1930), sternite VII of the holotype is mostly missing due to a teratological abnormality; only the left portion is present. The right side of sternite VIII is slightly enlarged to compensate for the loss of the right portion of sternite VII.

Harvey (1991) failed to notice that Turk (1946) corrected the spelling of the type locality of *M. silvestrii* to I Chan. However, as discussed above, the type locality is here corrected to Yuelu Shan, near Changsha, Hunan Province, China.

***Bisetocreagris japonica* (Ellingsen, 1907)**

Microcreagris gigas japonica Ellingsen, 1907, p. 7.

Microcreagris japonica Ellingsen: Chamberlin, 1930, p. 28, fig. 2bb; Harvey, 1991, p. 342–343 (full synonymy).

Bisetocreagris japonica (Ellingsen): Čurčić, *et al.* 1994a, p. 158; Čurčić, *et al.*, 1994b, p. 151, figs 9–11.

Material examined. 1 ♂, Chofu, Honshu, Japan [35°39'N, 139°33'E], 11–XI–1924, F. Silvestri (CAS, JC–388.01001).

Dimensions (mm). Body length 3.8. Carapace 1.085/1.105. Pedipalps: trochanter 0.635/0.375, femur 1.145/0.360, patella 0.965/0.455, chela (with pedicel) 1.785/0.680, chela (without pedicel) 1.730, hand length 0.870, movable finger length 0.945.

Remarks. *Microcreagris japonica* was recently transferred to *Bisetocreagris* by Čurčić *et al.* (1994a, b), and the specimen collected by Silvestri clearly fits within the diagnosis of the genus (Čurčić 1983) and the species (Morikawa 1960). *Bisetocreagris japonica* is widely distributed in Japan (Morikawa 1960), and the sole Chinese record was of a single male collected by Silvestri from 'Chofu' and recorded by Chamberlin (1930). As noted by Schawaller (1995), Chofu is actually situated in Japan and the Chinese record is in error.

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